Vol. 30

INDUSTRIAL ARTS AND VOCATIONAL EDUCATION

1941

The Shop Teachers Professional Magazine

THE BRUCE PUBLISHING COMPANY

Milwaukee New York Chicago Los Angeles

Administration

Adjustment Through the Arts, C. H. Waller, 424
Adult Training for Home Defense, Earl M. Bowler, 311
Century of Progress, A, 410
Challenge to Industrial-Arts Education, A, Raymond B. McHenry, 4
Concentrated Industrial Education Prepares Youth, Edward W. Stluka, 131
Curriculum Revision for Defense, Don R. McMahill, 121
Developing Social Consciousness Through Departmental Unity, H. P. Harshbarger, 134
Eight Big 8's in Industrial Education, The, R. T. Craigo, 431
Graphic Aids in Continuous Occupational Analyses, Clyde A. Bowman, 122, 155, 189
How Australia Is Taking Care of the Defense Training Program, 10
Industrial Arts in a System of Public Education, Heber A. Sotzin, 365
In-Service Training Program as a Leisure-Time Activity, An, Roy A. Radtke, 376
Integration Through Co-ordination, Earl M. Bowler, 9
Promoting the Vocational High School, R. Randolph Karch, 264
Proposed Vocational Guidance Program, A, W. J. Dunning, 136
Relationship Between Industrial Arts and Vocational Education, The, T. A. Hippaka, 368
Santa Barbara's New Industrial Division, Emanuel E. Ericson, 419
Technical and Trade Education, Homer J. Smith, 414
Training for National Defense, Robert W. Tarbell, 105
Vocational Education for the Small Community, Delmar E. Everett, 140

Aeronautics

Feather Airplane, A, Terence Vincent, 33
Industrial-Arts Aeronautics Test, M. D. Caffin, 20, 201
Industrial-Arts Ground Course in Aviation, Stanley S. Zamory, 47
U. S. Training Aviation Ground Crews, Earl Minderman, 283

Analysis

Graphic Aids in Continuous Occupational Analysis, Clyde A. Bowman, 122, 155, 189
Modern Plastics, Arthur Dunham, 7

Answers to Questions

Casein Vs. Oil Paints, 83A, March
Finishing a Rift Fir Floor, 83A, March
Finishing Hammered Iron, 84A, March
Natural Beechwood Finish, 38A, May
Priscilla Maple Finish, 262, June
Temper Colors, 84A, March
Tempering in Sand, 84A, March
Various Finishes for Mahogany, 42A, May

Arts and Crafts

Advertising the Evening School, Herbert Heilig, 383
Aluminum Trays, J. Ernest Kuehner, 28
Art Metalwork, V. P. Conners, 34, 75, 253; (Coloring Metals), 18A, May
Copper Book Ends, Harold G. Miller, 74
Copper Bookmarks, Amos G. Williams, 359
Flowers in Block Printing, May Lillian Lampe, 29
Handmade Jewelry, William T. Baxter, 316
Novelty Letter Openers, John S. Lorr, 330
Raising a Fluted Bowl, William E. Huss, 332
Stainless-Steel Letter Opener, Amos G. Williams, 326
Stencil Work Made Easy, Frank Bentley, 351
Test in Art-Metal Work, A. L. Thiede, 200

Auto Mechanics

Car Ladder, Arthur F. Schuster, 360
Final Second-Term Test in General Metal, W. H. Bowers, 241
Laboratory Equipment for Auto Electrical Work, Linder S. Wood, 395
Micrometer-Reading Lesson, A, J. H. McCloskey, 301
Outline for Course on Care and Repair of Tractors, Trucks, Automobiles, and Gas and Diesel Engines, Elwyn R. Dell, 116
Outline of Safe Driving Course, C. R. Lindstrom, 378
Safety in School Shops, Roy R. Van Duzee, 267, 384
Typical Job Sheets — Auto Mechanics, No. 1, F. B. Miller, 69

PAGES IN EACH ISSUE

January	1– 40
February	41– 82
March	83–140
April	141–178
May	179–218
June	219–262
September	263–310
October	311–364
November	365–410
December	411–448

Bibliography

Industrial-Arts Course for Girls, An, F. H. Harris, 43
Industrial-Arts Ground Course in Aviation, Stanley S. Zamory, 47
Proposed Vocational-Guidance Program, W. J. Dunning, 136
Teacher-Rating Scheme, A, Harold M. Gray, 289
Tests and Measurements in Industrial Arts, Martin J. Brennan, Jr., 52
Tests for Mechanical Insight, John Edmund Crawford, 55

Boats

Airplane-Propeller Boat, An, John Claude, 178
One-Man Fishing Skiff of Plywood, A, Claude W. Horst, 173
10-Ft. Sailing Surfboard, James McGregor, 210

Bruce's School Shop Annual

Analysis of Radio Serviceman's Trade, Harold R. Goppert 112
Arts and Industries Laboratory, H. D. Thomas, 94
Concentrated Industrial Education Prepares Youth, Edward W. Stluka, 131
County Arts and Industries Program, A, Delmar W. Olson, 126
Curriculum Revision for Defense, Don R. McMahill, 121
Developing Social Consciousness Through Departmental Unity, H. P. Harshbarger, 134
Electric Welding Course for High School Students, Lee Arnold, 120
General Shop in a Southern High School, Cecil E. King and Clay A. Easterly, 96
Graphic Aids in Continuous Occupational Analyses, Clyde A. Bowman, 122
Industrial Arts at Portage High School, R. M. Naset, 98
Industrial-Arts Experiment Shop, Ray Karnes, 101
Industrial Arts in the Defense Program, Fred C. Finsterbach, 107
Industrial Education Building at Springfield, Mo., Harry P. Study, 91
Laboratory of Arts and Industries, Wm. H. Johnson, 83
National Defense Training Objectives, Earl M. Bowler, 111
Printing High School at Cincinnati, Ohio, R. Randolph Karch, 99
Outline for Course on Care and Repair of Tractors, Trucks, Automobiles, and Gas and Diesel Engines, Elwyn R. Dell, 116
Personnel Service in Industrial Arts, I. M. Fenn, 138
Pertinent Paradoxes, Dean M. Schweickhard, 32A, March
Photography in the High School, R. H. Behrens, 117
Proposed Vocational Guidance Program, W. J. Dunning, 136
Qualifications of an Industrial-Arts Teacher, Eugene Giammatteo, 23A, March
Rural High School Shop and Classroom, Louis M. Roehl, 103
Teacher, A, W. E. Spangle, 104
Trades and Industries Building, John B. Coleman and W. F. Opperman, 85
Training for National Defense, Robert W. Tarbell, 105
Training for National Defense in Florida, Maude G. Woods, 108
Vocational Education for the Small Community, Delmer E. Everett, 140

Cement

Ceramic Plasters for the General Shop, H. M. Van De Walker, 441

Ceramics

Casting Compositions for Crafts Projects, Lowell C. Ferguson, 252
Vulcanized Latex Casts in Plaster Molds, Julian Silver, 70

Clubs

Egyptian House Model, Jacob J. Weitzenfeld and Harold E. Schofield, 435
Indian and Rodeo Vests, W. Ben. Hunt, 33
Indian Designs and Decorations, W. Ben. Hunt, 252
Indian Hoop Game and Bone and Shell Necklace, W. Ben. Hunt, 216
Marionette Stage, The, Helen M. Douglas, 397
Scout Neckerchief Slide, E. L. Longley, 434
Soap-Box Derby, Bill Horrell, 214
Sioux Ghost Shirt, W. Ben. Hunt, 308
10-Ft. Sailing Surfboard, James McGregor, 210
Whittling-Jackknife Technique, W. Ben. Hunt, 350, 394, 441

Course Outlines

Analysis of Radio-Serviceman's Trade, Harold R. Goppert, 112
Course in Industrial Carpentry, A, Mark McMillin, 13
Curriculum Revision for Defense, Don R. McMahill, 121
Electric Welding Course for High School Students, Lee Arnold, 120
Industrial-Arts Course for Girls, An, F. H. Harris, 43
Industrial-Arts Ground Course in Aviation, Stanley S. Zamory, 47
Modern Plastics, Arthur Dunham, 7
Outline for Course on Care and Repair of Tractors, Trucks, Automobiles, and Gas and Diesel Engines, Elwyn R. Dell, 116

Defense Training

Accounting Technique for National Defense Classes, An, Harold J. Van Westrienen, 237
Adult Training for Home Defense, Earl M. Bowler, 311
Bridgeport National Defense Training Program, The, T. E. Keyes, 11, 184
Contributions of Industrial Arts to Modern Industry and to National Defense, F. Theodore Struck, 179
Co-ordinating National Defense Training, Earl M. Bowler, 183
Girls Behind the Men Behind the Guns, The, Edward W. Stluka, 381
How Australia Is Taking Care of the Defense Training Program, 10
Industrial Arts in the Defense Program, Fred C. Finsterbach, 107
National Defense Training Objectives, Earl M. Bowler, 111
Printed Material and the Defense Program, R. Russell Munn, 186
Progress on Education for Defense, L. H. Dennis, 288
Public School and Industry in National Defense Training, Henry Roesch, 181
Training for National Defense, Robert W. Tarbell, 105
Training for National Defense in Florida, Maude G. Woods, 108
U. S. Training Aviation Ground Crews, Earl Minderman, 283
Vocational Training and the Labor Supply Problem of National Defense, L. S. Hawkins, 233

Drafting (Architectural and Mechanical)

Alphabet of Condensed Block Letters, Oliver Schade, 243
Architectural Drafting Test, R. J. Watson, 207
Architectural Models, G. A. Jester, 388
Bench Grinder, W. A. DeVette, 164, 168
Blueprinting Box, Fred C. Bartels, 399
Christmas Card Project, A, Raymond M. Alexander, 26
Column-Type Drill Press, William A. DeVette, 290, 339
Demonstration Board for Drafting Students, Clyde R. Garl, 398
Don't Blot That Drawing, Donald Maley, 400
Egyptian House Model, Jacob J. Weitzenfeld and Harold E. Schofield, 435
Flash Cards for Mechanical Drawing Classes, R. R. Bedker, 301
Grading Card for Mechanical Drawing, Floyd E. Byron, 72
Handy Mounting for Circular Reference and Data Disks, A, Frank Bentley, 306
Helical Gears, George J. Frey, 261
Industrial Arts at Portage High School, R. M. Naset, 98
Ink-Bottle Holder, William Fawcett, 308
Jig-Saw Details, Frank E. Anthony, 386
Key for Architectural Drawing Test, R. J. Watson, 240
Measuring Test, Kenneth Grinager, 437
Mechanical Drawing Test, W. C. Hjerstedt, 242
Mechanical Drawing Test, Stanley S. Radford, 247
New Sketch Sheet for Drafting Room, D. E. Kellogg, 259
Perspective Arms, Kenneth Grinager, 409
Rabbeted T Square, Joseph J. Lukowitz, 80

Screw Press, W. A. DeVette, 64, 70
Shop Activity Signs, Peter C. Furnair, 346
Steam Shovel, The, R. R. Bedker, 430
Test in Accuracy Using Various Scales, F. N. Newton, Jr., 249
Test on the Fundamentals of Mechanical Drawing, W. H. Bowers, 58
Tool Rack for the Mechanical-Drawing Room, Ralph W. Parker, 306
Trigonometry Chart, Norman W. Morgan, 206
Visual Aids in Vocational Education, Francis J. Coyte, 273

Editorials
American Ingenuity Wins Another Victory, 423
Apprentice Training, 315
Are You Changing Your Address?, 227
At the Close of the School Year, 227
Christmas and the New Year, 14
Few Thoughts for the Opening Class, A, 281
Getting Ready, 162
Great Achievement, A, 198
Gutzon Borglum, 162
Interesting Bit of Information, An, 14
National Defense Training and Industrial Arts, 315
1941 A.V.A. Convention, The, 423
Preference Rating Order No. P-22, 423
Printing Education Week, 14
Real Boy's Man, A, 315
Safeguarding Mental Health, 48
Safety in the School Shop, 281
Shop Reference Libraries, 162
Task Confronting Us, The, 227
Testing and Tests, 48
Value of Industrial Arts and Vocational Education Recognized, The, 375
Volume Just Finished, The, 423
Washington and Lincoln and Our Times, 48
What of the Future?, 198
Worth-While Addition, A, 375

Electricity
Analysis of Radio-Serviceman's Trade, Harold R. Goppert, 112
Code Practice Key and Buzzer, Harold L. Noakes, 386
Direct-Reading Electronic Voltmeter, Gilbert Oberweiser, 170
Door Chimes, Harry R. Wilson, 434
Dry-Cell Holder Made of Tin Cans, John M. Avery, 80
Electric-Shop Pupil-Personnel Organization, Carl F. Oberschmidt, 427
Electric Welding Course for High School Students, Lee Arnold, 120
Electrical Tricks for Exhibition Purposes, Wynne L. McDougal, 256
Fuse and Continuity Tester, J. D. Hopkins, 400
Magneto Generator, Joseph J. Lukowitz, 344
110-Volt Horn, W. J. Stinson, 258
Radio and Industrial Arts, Carleton E. Beck, 260
Rebuilding Dry Cells, E. A. Rerucha, 387
Visual Aids in Vocational Education, Francis J. Coyte, 273
Voltage-Regulator Demonstration Board, Edward V. Walters, 168
Wrought-Iron Floor Lamp, Robert P. Jensen, 354

Farm Shop
Visual Aids in Vocational Education, Francis J. Coyte, 273

Foundry
Making a Screw Driver, George C. Donson, 437

General Shop
Arts and Industries Laboratory, H. D. Thomas, 94
Care of Paints and Paint Brushes in the School Shop, Einar E. Siro, 307
Code Practice Key and Buzzer, Harold L. Noakes, 386
County Arts and Industries Program, A, Delmar W. Olson, 126
Door Chimes, Harry R. Wilson, 434
General Shop in a Southern High School, Cecil E. King and Clay A. Easterly, 96
General-Shop Teaching, Ralph Gallington, 286
General Test for Girls Home Mechanics, George L. Simnicht, 60
Hanging Window Shelf, George C. Schultz, 326
Laboratory of Arts and Industries, William H. Johnson, 83
Liberty Book Ends, E. Carlyle Lynch, Jr., 322
Magneto Generator, Joseph J. Lukowitz, 344
Material Control and Distribution, Joseph A. Schad, 5
Mid-Term Test in General Metalwork, W. H. Bowers, 59
Planning and Equipping a Graphic-Arts Shop, Roy R. Van Duzee and Raymond W. Sturm, 219
Rural High School Shop and Classroom, Louis M. Roehl, 103
Sandpaper Books, C. F. Van Nortwick, 300
Solder Economy, Einar E. Siro, 74
Test for the General Metal Class, Harold E. Robbins, 62
Values of Industrial-Arts Education in the Texas Junior High School, 312
Visual Aids in Vocational Education, Francis J. Coyte, 273

Guidance
Counseling Procedures of Industrial-Arts Teachers, Louis V. Newkirk, 369
Meeting Vocational Needs in an Institution, J. E. Balmer, 230
Proposed Vocational Guidance Program, W. J. Dunning, 136
Vocational Guidance of the Underprivileged, Hyman Goldstein, 45

Hobbies
Creative Hobbies, A. G. Pelikan, 272
In-Service Training Program as a Leisure-Time Activity, An, Roy A. Radtke, 376
Marionette Stage, The, Helen M. Douglas, 397
Whittling-Jackknife Technique, W. Ben. Hunt, 350, 394, 441

Home Shop
In-Service Training Program as a Leisure-Time Activity, An, Roy A. Radtke, 376

Illustrated Material
Demonstration Board for Drafting Students, Clyde R. Garl, 398
Visual Aids in Vocational Education, Francis J. Coyte, 273

Industrial Arts
Adjustment Through the Arts, C. H. Waller, 424
Arts and Industries Laboratory, H. D. Thomas, 94
Assembly Program, An — Why Industrial Arts, Donald M. Parkes, 41
Boston and the American Vocational Association Convention, Edward C. Emerson, 411
Challenge to Industrial-Arts Education, A, Raymond B. McHenry, 4
Contributions of Industrial Arts to a Functional Education, Earl Bedell, 141
Contributions of Industrial Arts to Modern Industry and to National Defense, F. Theodore Struck, 179
Counseling Procedures of Industrial-Arts Teachers, Louis V. Newkirk, 369
County Arts and Industries Program, A, Delmar W. Olson, 126
Creative Hobbies, A. G. Pelikan, 272
Daylight Projection Tunnel, Edwin J. Reinel, 310
Developing Social Consciousness Through Departmental Unity, H. P. Harshbarger, 134
Eight Big 8's in Industrial Education, The, R. T. Craigo, 431
Electric-Shop Pupil-Personnel Organization, Carl F. Oberschmidt, 427
Examples of Good Housekeeping, F. Theodore Struck, 371
Follow-up Study of Industrial-Arts Graduates, E. D. Meyer, 11
General-Shop Teaching, Ralph Gallington, 286
Graphic Aids in Continuous Occupational Analysis, Clyde A. Bowman, 122, 155, 189
Home Sports — An Industrial-Arts Play, James Heath, 199
Implications for Industrial Education of the A.V.A. Study of Vocational Graduates, Arthur B. Mays, 263
Industrial Arts at Portage High School, R. M. Naset, 98
Industrial-Arts Course for Girls, An, F. H. Harris, 43
Industrial-Arts Experiment Shop, Ray Karnes, 101
Industrial Arts in a System of Public Education, Heber A. Sotzin, 365
Industrial Arts in the Defense Program, Fred C. Finsterbach, 107
Industrial-Arts Shop Inventory, Geo. Deffendahl, 236
Industrial-Arts Test, Robert P. Jensen, 56
Industrial Education at Iowa State College, T. A. Hippaka, 148
Industrial Education Building at Springfield, Mo., Harry P. Study, 91
Initial Steps in Planning Shops, Roger J. Weaver, 238
In-Service Training Program as a Leisure-Time Activity, An, Roy A. Radtke, 376
Is Woodworking on the Way Out?, John Claude, 160
Laboratory of Arts and Industries, Wm. H. Johnson, 83
Learning by Doing, Raymond D. Meade, 228
Material Control and Distribution, Joseph A. Schad, 5
Modern Plastics, Arthur Dunham, 7
More Than Just a Plan Sheet, Bernard G. Swift, 298
National Defense Training Objectives, Earl M. Bowler, 111
Personnel Service in Industrial Arts, I. M. Fenn, 138
Photography in the High School, R. H. Behrens, 117
Planning and Equipping a Graphic-Arts Shop, Roy R. Van Duzee and Raymond W. Sturm, 219
Promoting the Vocational High School, R. Randolph Karch, 264
Qualifications of an Industrial-Arts Teacher, Eugene Giammatteo, 23A, March
Rack for Reference Books and Pamphlets, William K. Nevard, 28
Relation of Industrial Arts to Vocational Education, Walter E. Durbahn, 270
Relationship Between Industrial Arts and Vocational Education, The, T. A. Hippaka, 368
Safety-First Information Sheet, Earl F. Griswold, 307
Santa Barbara's New Industrial Division, Emanuel E. Ericson, 419
School That Boys Built, The, Walter E. Durbahn, 143
Should Only Individual Instruction Be Used?, Claude H. Ewing, 16
Technical and Trade Education, Homer J. Smith, 414
Toolroom Report, A, Howard C. Nelson, 396
Training Workers for Industrial Citizenship, Boyd C. Shafer and Willis E. Giese, 1
Values of Industrial-Arts Education in the Texas Junior High School, Chris H. Groneman, 312
Visual Aids in Vocational Education, Francis J. Coyte, 273
Where Does the Project End?, William J. Doherty, 433

Instruction Sheets
Linoleum Block Cutting
Christmas Cards, May Lillian Lampe, 438
Making a Quart Cup, R. W. Wagner, 77
Making a Screw Driver, George C. Donson, 437
Making Mimeograph Work More Attractive, Lowell C. Ferguson, 254
Measuring Test, Kenneth Grinager, 437
Micrometer-Reading Lesson, A, J. H. McCloskey, 301
Personnel Service in Industrial Arts, I. M. Fenn, 138
Radio and Industrial Arts, Carleton E. Beck, 260
Should Only Individual Instruction Be Used?, Claude H. Ewing, 16
Simplifying Tool Checking in the Machine Shop, Henry C. Short, 442
Soldering Exercise, G. L. Simnicht, 436
Teaching Elementary Lockup, R. W. Rueter, 73
Typical Job Sheets — Auto Mechanics, No. 1, F. B. Miller, 69

Linoleum Block Cutting
Bookplates, May Lillian Lampe, 327
Christmas Cards, May Lillian Lampe, 438
Flowers in Block Printing, May Lillian Lampe, 29
Safety Posters, H. Gordon Douglas, 291
Thanksgiving Cards, May Lillian Lampe, 398

Machine Shop
Anvil, R. E. Murray, 32
Car Ladder, Arthur F. Schuster, 360
Column-Type Drill Press, William A. DeVette, 290, 339
Double-End End-Mill Holders, Milo P. Johnson, 305
Handy Mounting for Circular Reference and Data Disks, A, Frank Bentley, 306
Helical Gears, George J. Frey, 261
Jig-Saw Details, Frank E. Anthony, 386
Lathe Panel, John M. Ayres, 401
New Hardening Process, A, 395
Trigonometry Chart, Norman W. Morgan, 206
Visual Aids in Vocational Education, Francis J. Coyte, 273

Metalwork
Abrasive Wheel, An, Homer C. Rose, 402
Adjustable Typing and Reading Stand, Victor Tiedeman, 337
Aluminum Trays, J. Ernest Kuehner, 28
Art Metalwork, V. P. Conners, 34, 75, 253, 290; (Coloring Metals), 18A, May
Car Ladder, Arthur F. Schuster, 360
Copper Book Ends, Harold G. Miller, 74
Copper Bookmarks, Amos G. Williams, 359
Door Chimes, Harry R. Wilson, 434
Efficient Inexpensive Foundry Furnace, Michael F. Blawat, 72
Final Second-Term Test in General Metal, W. H. Bowers, 241
Folding Camp Grate, Garrott Barich, 322
Foot-Powered Potter's Wheel, Harold F. Stegmiller and Robert E. Smith, 356
Four Simple Projects for the Metalworker, William W. Wills and Delmar W. Olson, 26
Handmade Jewelry, William T. Baxter, 316
Hanging Window Shelf, George C. Schultz, 326
High-Jump and Pole-Vault Standards, R. L. Ready, 303
Indoor-Garden Watering Can, George L. Marsh, 355
Industrial Arts at Portage High School, R. M. Naset, 98
Lead-Cast Threads for Metal-Spinning Chucks, Earl E. Smith and James E. Reagan, 387
Liberty Book Ends, E. Carlyle Lynch, Jr., 322
Making a Screw Driver, George C. Donson, 437
Measuring Test, Kenneth Grinager, 437
Metal Finishing, Harry W. Kroll, 336
Metal Racks for the Small Shop, Einar E. Siro; 325
Metal Table Lamp, Delmar W. Olson, 321
Micrometer-Reading Lesson, A, J. H. McCloskey, 301
Mid-Term Test in General Metalwork, W. H. Bowers, 59
Modern Smoking Stand, Otto A. Northquest, 349
New Hardening Process, A, 395
Plaques and Trophies, H. W. Schulze, 406
Raising a Fluted Bowl, William E. Huss, 332
Rapid Determination of Lumber and Sheet-Metal Costs, Robert Cooley, 204
Scout Neckerchief Slide, E. L. Longley, 434
Skate Sharpening Jig, H. W. Babcock, 404
Smithing Coal, J. H. McCloskey, 309
Solder Economy, Einar E. Siro, 74
Soldering Exercise, G. L. Simnicht, 436
Spun Mint Tray, Harvard Leighton, 362
Stainless-Steel Letter Opener, Amos G. Williams, 326
Steel Letter Opener, Amos G. Williams, 351
Stock-Bill Formula, A, Homer C. Rose, 395
Test for the General Metal Class, Harold E. Robbins, 62
Test in Art-Metal Work, A. L. Thiede, 200
Three-Shelf Plant Stand, William A. Van Aken, 355
Tool Rack for the Mechanical-Drawing Room, Ralph W. Parker, 306
Visual Aids in Vocational Education, Francis J. Coyte, 273
Wall Ivy Holder, John R. Rainsford and Frank E. Anthony, 319
Wire Racks for the Metal Shop, Einar E. Siro, 218
Wrought-Iron Floor Lamp, Robert P. Jensen, 354
Wrought-Iron Lawn Chair, Clyde R. Sutfin, 324

Method
Accounting Technique for National Defense Classes, An, Harold J. Van Westrienen, 237

general
Walsh

Concentrated Industrial Education Prepares Youth, Edward W. Stluka, 131

Objectives
Promoting the Vocational High School, R. Randolph Karch, 264

Plastics
Modern Plastics, Arthur Dunham, 7

Playlets
Assembly Program, An — Why Industrial Arts, Donald M. Parkes, 41
Home Sports — An Industrial-Arts Play, James Heath, 199

Poems
Qualifications of an Industrial-Arts Teacher, Eugene Giammatteo, 23A, March
Teacher, A, W. E. Spangle, 104
We Who Teach, Adam N. Reiter, 250

Printing
Advertising the Evening School, Herbert Heilig, 383
Bookplates, May Lillian Lampe, 327
Christmas Cards, May Lillian Lampe, 438
Christmas Card Project, A, Raymond M. Alexander, 26
Flowers in Block Printing, May Lillian Lampe, 29
Key to Printing Test, T. E. Keyes, 201
Little Calendars, Hazel F. Showalter, 440
New Sketch Sheet for Drafting Room, D. E. Kellogg, 259
Planning and Equipping a Graphic-Arts Shop, Roy R. Van Duzee and Raymond W. Sturm, 219
Printing High School at Cincinnati, Ohio, R. Randolph Karch, 99
Printing Teachers Give Views in Symposia, R. Randolph Karch, 37, 81
Printing Test, Parts I and II, R. W. Rueter, 73
Print-Shop Safety Rules, E. V. Ahonen, 303
Promoting the Vocational High School, R. Randolph Karch, 264
Safety Posters, H. Gordon Douglas, 291
Teaching Elementary Lockup, R. W. Rueter, 73
Test for the Print Shop, E. V. Ahonen, 67, 203
Test for the Print Shop, R. Randolph Karch, 240
Thanksgiving Cards, May Lillian Lampe, 398
Visual Aids in Vocational Education, Francis J. Coyte, 273

Radio
Analysis of Radio-Serviceman's Trade, Harold R. Goppert, 112
Radio and Industrial Arts, Carleton E. Beck, 260

Rating Scales
Teacher-Rating Scheme, A, Harold M. Gray, 289

Related Work
Ceramic Plasters for the General Shop, H. M. Van De Walker, 441
Electrocoated Waterproof Abrasive Papers for Furniture Finishing, Ray A. Wigen and Louis F. Barocci, 39
Knights of the Day, Dean M. Schweickhard, 185
Making Christmas Trees Safer, 28
Memory Molds, Dean M. Schweickhard, 422
Pertinent Paradoxes, Dean M. Schweickhard, 32A, March
Properties, Selection, and Suitability of Woods for Woodworking, Donald G. Coleman, 17, 50
Pull of a Purpose, Dean M. Schweickhard, 226
Rugged Refinement, Dean M. Schweickhard, 374
Seeing Through Shadows, Dean M. Schweickhard, 49
Steam Shovel, The, R. R. Bedker, 430
Stock-Bill Formula, A, Homer C. Rose, 395
Texture of Toil, The, Dean M. Schweickhard, 280
Things to Think About, R. W. Selvidge, 3, 46, 106, 184, 271
Trigonometry Chart, Norman W. Morgan, 206
Trying to Be Somebody Else, Dean M. Schweickhard, 167
Understanding Decimal Dimensions, M. F. Foss, 251
Ways That Win, Dean M. Schweickhard, 314
What Next?, Dean M. Schweickhard, 15
Where Does the Project End?, William J. Doherty, 433

Research Studies
Adjustment Through the Arts, C. H. Waller, 424
Follow-up Study of Industrial-Arts Graduates, E. D. Meyer, 11

Safety
Outline of Safe Driving Course, C. R. Lindstrom, 378
Print-Shop Safety Rules, E. V. Ahonen, 303
Safety-First Information Sheet, Earl F. Griswold, 307
Safety in School Shops, Roy R. Van Duzee, 267, 384

School and Shop Utilities
Abrasive Wheel, An, Homer C. Rose, 402
Anvil, R. E. Murray, 32
Blueprinting Box, Fred C. Bartels, 399
Daylight Projection Tunnel, Edwin J. Reinel, 310
Double-End End-Mill Holders, Milo P. Johnson, 305
Drawing Table, Roy Alger, 214
Efficient Inexpensive Foundry Furnace, Michael F. Blawat, 72
Football Charging Sled and Hurdles, Dean S. Bellman, 439
Foot-Powered Potter's Wheel, Harold F. Stegmiller and Robert E. Smith, 356
Fuse and Continuity Tester, J. D. Hopkins, 400
High-Jump and Pole-Vault Standards, R. L. Ready, 303
Laboratory Equipment for Auto-Electrical Work, Linder S. Wood, 395
Lathe Panel, John M. Ayres, 401
Lathe Stand, Herbert K. Iverson, 257
Lead-Cast Threads for Metal-Spinning Chucks, Earl E. Smith and James E. Reagan, 387
Magneto Generator, Joseph J. Lukowitz, 344
Making Christmas Trees Safer, 28
Marionette Stage, The, Helen M. Douglas, 397
Measuring Test, Kenneth Grinager, 437
Metal Finishing, Harry W. Kroll, 336
Oilstone Cabinet, Don K. Wildgrube, 302
Perspective Arms, Kenneth Grinager, 409
Practical File Cabinet for Music Department, Charles M. Rice, 298
Rack for Reference Books and Pamphlets, William K. Nevard, 28
Rapid Determination of Lumber and Sheet-Metal Costs, Robert Cooley, 204
Sawdust Trap for Circular Saws, J. I. Anderson, 301
Shop Activity Signs, Peter C. Furnari, 346
Tool Rack for the Mechanical-Drawing Room, Ralph W. Parker, 306
Visual Instruction in Wood Finishing, Robert H. Wright, 215
Wire Racks for the Metal Shop, Einar E. Siro, 218

Sheet Metal
Copper Bookmarks, Amos G. Williams, 359
Making a Quart Cup, R. W. Wagner, 77
Solder Economy, Einar E. Siro, 74

Shop Kinks
Bit Gauge, Jesse E. Rathbun, 351
Don't Blot That Drawing, Donald Maley, 400
Dry-Cell Holder Made of Tin Cans, John M. Avery, 80
Handy Mounting for Circular Reference and Data Disks, A, Frank Bentley, 306
Lacquer for Lathe Projects, A. L. Toews, 308
Lead-Cast Threads for Metal-Spinning Chucks, Earl E. Smith and James E. Reagan, 387
Making Christmas Trees Safer, 28
Making Mimeograph Work More Attractive, Lowell C. Ferguson, 253
New Sketch Sheet for Drafting Room, D. E. Kellogg, 259
Rabbeted T Square, Joseph J. Lukowitz, 80
Sandpaper Books, C. F. Van Nortwick, 300
Sharpening the Plane Iron on a Hand-Powered Grinder, William Fawcett, 308
Shop Storage Kink, A, Wayne M. Judy, 302
Smithing Coal, J. H. McCloskey, 309
Solder Economy, Einar E. Siro, 74

Shop Management
Electric-Shop Pupil-Personnel Organization, Carl F. Oberschmidt, 427
Grading Card for Mechanical Drawing, Floyd E. Byron, 72
Industrial-Arts Shop Inventory, Geo. Deffendahl, 236
Inspection Lists for Industrial-Arts Shops, Hiram E. Jackson, 38
Material Control and Distribution, Joseph A. Schad, 5
More Than Just a Plan Sheet, Bernard G. Swift, 298
Sandpaper Books, C. F. Van Nortwick, 300
Simplifying Tool Checking in the Machine Shop, Henry C. Short, 442
Toolroom Report, A, Howard C. Nelson, 396

Shop Planning
Arts and Industries Laboratory, H. D. Thomas, 94
County Arts and Industries Program, A, Delmar W. Olson, 126
Examples of Good Housekeeping, F. Theodore Struck, 371
General Shop in a Southern High School, Cecil E. King and Clay A. Easterly, 96
Industrial Arts at Portage High School, R. M. Naset, 98
Industrial-Arts Experiment Shop, Ray Karnes, 101
Industrial Education Building at Springfield, Mo., Harry P. Study, 91
Initial Steps in Planning Shops, Roger J. Weaver, 238
Learning by Doing, Raymond D. Meade, 228
Printing High School at Cincinnati, Ohio, R. Randolph Karch, 99
Laboratory of Arts and Industries, Wm. H. Johnson, 83
Photography in the High School, R. H. Behrens, 117
Planning and Equipping a Graphic-Arts Shop, Roy R. Van Duzee and Raymond W. Sturm, 219
Rural High School Shop and Classroom, Louis M. Roehl, 103
Santa Barbara's New Industrial Division, Emanuel E. Ericson, 419
School That Boys Built, The, Walter E. Durbahn, 143
Trades and Industries Building, John B. Coleman and W. F. Opperman, 85

Sports, Games, Toys, Models, Camp Work, Archery
Airplane-Propeller Boat, An, John Claude, 178
Concha Buttons, W. Ben. Hunt, 76
Decoy Ducks, Ed. C. Hunt, 408
Egyptian House Model, Jacob J. Weitzenfeld and Harold E. Schofield, 435
Feather Airplane, A, Terence Vincent, 33
Football Charging Sled and Hurdles, Dean S. Bellman, 439
High-Jump and Pole-Vault Standards, R. L. Ready, 303
How to Make a Relief Model, C. Frank Brockman, 443
Indian and Rodeo Vests, W. Ben. Hunt, 33
Indian Designs and Decorations, W. Ben. Hunt, 252
Indian Fish and Frog Spears, W. Ben. Hunt, 170
Indian Hoop Game and Bone and Shell Necklace, W. Ben. Hunt, 216
Marionette Stage, The, Helen M. Douglas, 397
Model Basketball Court Aids Coaches, Fred McGinnis and Bernard Keefe, 405
Novel Fish Pole, A, Arnold Radtke, 300
One-Man Fishing Skiff of Plywood, A, Claude Wm. Horst, 173
Sioux Ghost Shirt, W. Ben. Hunt, 308
Soap-Box Derby, Bill Horrell, 214
10-Ft. Sailing Surfboard, James McGregor, 210

Stagecraft
How to Make a Relief Model, C. Frank Brockman, 443

Supervision
Century of Progress, A, 410
Teacher-Rating Scheme, A, Harold M. Gray, 289
Inspection Lists for Industrial-Arts Shops, Hiram E. Jackson, 38

Teaching Aids
Demonstration Board for Drafting Students, Clyde R. Garl, 398
Flash Cards for Mechanical-Drawing Classes, R. R. Bedker, 301
Lathe Panel, John M. Ayres, 401
Model Basketball Court Aids Coaches, Fred McGinnis and Bernard Keefe, 405
Printed Material and the Defense Program, R. Russell Munn, 186
Visual Aids in Vocational Education, Francis J. Coyte, 273
Visual Instruction in Wood Finishing, Robert H. Wright, 215
Voltage-Regulator Demonstration Board, Edward V. Walters, 168

Testing and Tests
Architectural Drafting Test, R. J. Watson, 207
Final Second-Term Test in General Metal, W. H. Bowers, 241
General Test for Girls Home Mechanics, George L. Simnicht, 60
Industrial-Arts Aeronautics Test, M. D. Caffin, 20; No. 2, 201
Industrial-Arts Test, Robert P. Jensen, 56
Key for Architectural Drawing Test, R. J. Watson, 240
Key to Printing Test, T. E. Keyes, 201
Lathe Panel, John M. Ayres, 401
Measuring Accomplishments in Cooperative Part-Time Training, R. B. McHenry, 294
Measuring Test, Kenneth Grinager, 437
Mechanical Drawing Test, W. C. Hjerstedt, 242
Mechanical Drawing Test, Stanley S. Radford, 242
Midget Wiggly Block Test for Mechanical Ability, The, Howard O. Reed, 153
Mid-Term Test in General Metalwork, W. H. Bowers, 59
Mid-Term Test for Industrial-Arts Woodworking Classes, James F. Ahlbach, 67
Printing Test, Parts I and II, R. W. Rueter, 73
Teaching Elementary Lockup, R. W. Rueter, 73
Test for the General Metal Class, Harold E. Robbins, 62
Test for the Print Shop, E. V. Ahonen, 67, 203
Test for the Print Shop, R. Randolph Karch, 240
Test in Accuracy Using Various Scales, F. N. Newton, Jr., 249
Test in Art-Metal Work, A. L. Thiede, 200
Test on the Fundamentals of Mechanical Drawing, W. H. Bowers, 58
Tests and Measurements in Industrial Arts, Martin J. Brennan, Jr., 52
Tests for Mechanical Insight, John Edmund Crawford, 55
Understanding Decimal Dimensions, M. F. Foss, 251
Woodworking Test — Multiple Choice Test, Fred W. Weyer, 249

Tracings
Bench Grinder, W. A. DeVette, 164, 168
Screw Press, W. A. DeVette, 64, 70

Visual Aids
Visual Instruction in Wood Finishing, Robert H. Wright, 215

Vocational Education
Adult Training for Home Defense, Earl M. Bowler, 311
Boston and the American Vocational Association Convention, Edward C. Emerson, 411
Bridgeport National Defense Training Program, The, T. E. Keyes, 11, 184
Co-ordinating National Defense Training, Earl M. Bowler, 183
Course in Industrial Carpentry, A, Mark McMillin, 13
Curriculum Revision for Defense, Don R. McMahill, 121
Daylight Projection Tunnel, Edwin J. Reinel, 310
Eight Big 8's in Industrial Education, The, R. T. Craigo, 431
Examples of Good Housekeeping, F. Theodore Struck, 371
Graphic Aids in Continuous Occupational Analyses, Clyde A. Bowman, 122, 155, 189
How Australia Is Taking Care of the Defense Training Program, 10
Implications for Industrial Education of the A.V.A. Study of Vocational Graduates, Arthur B. Mays, 263
Industrial Education at Iowa State College, T. A. Hippaka, 148
Industrial Education Building at Springfield, Mo., Harry P. Study, 91
Initial Steps in Planning Shops, Roger J. Weaver, 238
In-Service Training Program as a Leisure-Time Activity, An, Roy A. Radtke, 376

Integration Through Co-ordination, Earl M. Bowler, 9
Is Woodworking on the Way Out?, John Claude, 160
Learning by Doing, Raymond D. Meade, 228
Material Control and Distribution, Jos. A. Schad, 5
Measuring Accomplishments in Cooperative Part-Time Training, R. B. McHenry, 284
Meeting Vocational Needs in an Institution, J. E. Balmer, 230
National Defense Training Objectives, Earl M. Bowler, 111
Photography in the High School, R. H. Behrens, 117
Printed Material and the Defense Program, R. Russell Munn, 186
Progress on Education for Defense, L. H. Dennis, 288
Promoting the Vocational High School, R. Randolph Karch, 264
Public School and Industry in National Defense Training, Henry Roesch, 181
Rack for Reference Books and Pamphlets, William K Nevard, 28
Relation of Industrial Arts to Vocational Education, Walter E. Durbahn, 270
Relationship Between Industrial Arts and Vocational Education, The, T. A. Hippaka, 368
Safety-First Information Sheet, Earl F. Griswold, 307
School That Boys Built, The, Walter E. Durbahn, 143
Should Only Individual Instruction Be Used?, Claude H. Ewing, 16
Technical and Trade Education, Homer J. Smith, 414
Toolroom Report, A, Howard C. Nelson, 396
Trades and Industries Building, John B. Coleman and W. F. Opperman, 85
Training for National Defense, Robert W. Tarbell, 105
Training for National Defense in Florida, Maude G. Woods, 108
Training Workers for Industrial Citizenship, Boyd C. Shafer and Willis E. Giese, 1
U. S. Training Aviation Ground Crews, Earl Minderman, 283
Visual Aids in Vocational Education, Francis J. Coyte, 273
Vocational Education for the Small Community, Delmer E. Everett, 140
Vocational Training and the Labor Supply Problem of National Defense, L. S. Hawkins, 233
We Produce Men and Mechanics, Edw. C. Estabrooke, 151

Welding

Folding Camp Grate, Garrott Barich, 322
Three-Shelf Plant Stand, William A. Van Aken, 355

Woodworking

Abrasive Wheel, An, Homer C. Rose, 402
Bit Gauge, Jesse E. Rathbun, 351
Blueprinting Box, Fred C. Bartels, 399
Care of Paints and Paint Brushes in the School Shop, Einar E. Siro, 307
Casting Compositions for Crafts Projects, Lowell C. Ferguson, 252
Child's Chair and Table, Hazel F. Showalter, 334
Column-Type Drill Press, William A. DeVette, 290, 339
Combination Card and Checker Table, P. L. Brownell, 320
Course in Industrial Carpentry, A, Mark McMillin, 13
Decoy Ducks, Ed. C. Hunt, 408
Drawing Table, Roy Alger, 214
Duncan Phyfe — The Great American Furniture Maker, J. I. Sowers, 255
Electrocoated Waterproof Abrasive Papers for Furniture Finishing, Ray A. Wigen and Louis F. Barocci, 39
Everyday Mistakes Which Some Students Make in Woodworking, M. H. Perkins, 262
Folding Card Table — Fireplace Screen, Chris H. Groneman, 80
Football Charging Sled and Hurdles, Dean S. Bellman, 439
Foot-Powered Potter's Wheel, Harold F. Stegmiller and Robert E. Smith, 356
Footstool, Willard H. Davis, 332
Hanging Window Shelf, George C. Schultz, 326
Ink-Bottle Holder, William Fawcett, 308
Is Woodworking on the Way Out?, John Claude, 160
Jig-Saw Details, Frank E. Anthony, 386
Kitchen Stool, Ray Treasure, 361
Knife Holder for the Kitchen, Harmon Kurtz, 349
Lacquer for Lathe Projects, A. L. Toews, 308
Lathe Stand, Herbert K. Iverson, 257
Liberty Book Ends, E. Carlyle Lynch, Jr., 322
Little Calendars, Hazel F. Showalter, 440
Mid-Term Test for Industrial-Arts Woodworking Classes, James F. Ahlbach, 67
Miniature Christmas Trees, R. E. Murray, 438
Modern Coffee Table, Louis Barocci, 344
Modern Desk, James Brammer, 409
Modernistic Desk, A, Vernon C. Watkins, 254
Novel Fish Pole, A, Arnold Radtke, 300
Novelty Letter Openers, John S. Lorr, 330
Oilstone Cabinet, Don K. Wildgrube, 302
One-Man Fishing Skiff of Plywood, A, Claude Wm. Horst, 173
Photo Stand, H. C. Rose, 338
Practical File Cabinet for Music Department, Charles M. Rice, 298
Preparing Wood for Finishing, William Fawcett, 325
Preparing Wood Surfaces, Ernest Pieri, 436
Properties, Selection, and Suitability of Woods for Woodworking, Donald G. Coleman, 17, 50
Queen Anne Hall Table, Franklin H. Gottshall, 338
Radio End Table, Chris Harold Groneman, 304
Rapid Determination of Lumber and Sheet-Metal Costs, Robert Cooley, 204
Sandpaper Books, C. F. Van Nortwick, 300
Sawdust Trap for Circular Saws, J. I. Anderson, 301
Scotty Book Ends, L. B. Rosenberg, 71
Serving Trays, W. I. Tawes, 353
Sharpening the Plane Iron on a Hand-Powered Grinder, William Fawcett, 308
Shop Activity Signs, Peter C. Furnari, 346
Shop Storage Kink, A, Wayne M. Judy, 302
Spade-Foot Tilt-Top Table, H. W. Michelson and R. O. Buck, 347
Spanish Coffee Table, William S. Sherinyan, 330
Stencil Work Made Easy, Frank Bentley, 351
Stock-Bill Formula, A, Homer C. Rose, 395
Telephone Stand, Clifford B. Smith, 22
Turned Lamps, C. R. Wells, 408
Whittling-Jackknife Technique, W. Ben. Hunt, 350, 394, 441
Wood-Lathe Turning-Tool Kit on Wheels, W. H. Ammon, 406
Woodworking Test.— Multiple Choice Test, Fred W. Weyer, 249
Worn Feudal-Oak Radio or Fireside Bench, C. Forrest Felix, 210
Worn Table — Feudal Oak Finish, C. Forrest Felix, 446

INDEX OF AUTHORS

A

Ahlbach, James F., 67
Ahonen, E. V., 67, 203, 303
Alexander, Raymond M., 26
Alger, Roy, 214
Ammon, W. H., 406
Anderson, J. I., 301
Anthony, Frank E., 319, 386, 390, 391
Arnold, Lee, 120
Avery, John M., 80
Ayres, John M., 401

B

Babcock, H. W., 404
Balmer, J. E., 230
Barich, Garrott, 322
Barocci, Louis F., 39, 344
Bartels, Fred C., 399
Baxter, William T., 316
Beck, Carleton E., 260
Bedell, Earl, 141
Bedker, R. R., 301, 430
Behrens, R. H., 117
Bellman, Dean S., 439
Bentley, Frank, 306, 351
Blawat, Michael F., 72
Bowers, W. H., 58, 59, 241
Bowler, Earl M., 9, 111, 183, 311
Bowman, Clyde A., 122, 155, 189
Brammer, James, 409
Brennan, Martin J., Jr., 52
Brockman, C. Frank, 443
Brownell, P. L., 320
Buck, R. O., 347
Byron, Floyd E., 72

C

Caffin, M. D., 20, 201
Claude, John, 160, 178
Coleman, Donald G., 17, 50
Coleman, John B., 85
Conners, V. P., 34, 75, 18A (May), 253, 290
Cooley, Robert, 204
Coyte, Francis J., 273
Craigo, R. T., 431
Crawford, John Edmund, 55

D

Davis, Willard H., 332
Deffendahl, Geo. W., 236
Dell, Elwyn R., 116
Denais, L. H., 288
DeVette, W. A., 64, 70, 164, 168, 290, 339
Doherty, William J., 433
Donson, George C., 437
Douglas, H. Gordon, 291
Douglas, Helen M., 397
Dunham, Arthur, 7
Dunning, W. J., 136
Durbahn, Walter E., 143, 270

E

Easterly, Clay A., 96
Emerson, Edward C., 411
Ericson, Emanuel E., 419
Estabrooke, Edw. C., 151
Everett, Delmer E., 140
Ewing, Claude H., 16

F

Fawcett, William, 308, 325
Felix, C. Forrest, 210, 446
Fenn, I. M., 138
Ferguson, Lowell C., 252, 253
Finsterbach, Fred C., 107
Foss, M. F., 245, 251
Frey, George J., 261
Furnari, Peter C., 346

G

Gallington, Ralph, 286
Garl, Clyde R., 398
Giammatteo, Eugene, 23A (March)
Giese, Willis E., 1
Gottshall, Franklin H., 338
Gray, Harold M., 289
Grinager, Kenneth, 409, 437
Griswold, Earl F., 307
Groneman, Chris H., 80, 304, 312
Goldstein, Hyman, 45
Goppert, Harold R., 112

H

Harris, F. H., 43
Harshbarger, H. P., 134
Hawkins, L. S., 233
Heath, James, 199
Heilig, Herbert, 383
Hippaka, T. A., 148, 368
Hjerstedt, W. C., 242
Hopkins, J. D., 400
Horrell, Bill, 214
Horst, Claude Wm., 173
Hunt, Ed. C., 408
Hunt, W. Ben., 33, 76, 170, 216, 252, 308, 350, 394, 441
Huss, William E., 332

I

Iverson, Herbert K., 257

J

Jackson, Hiram E., 38
Jensen, Robert P., 56, 354
Jester, G. A., 388
Johnson, Milo P., 305
Johnson, Wm. H., 83
Judy, Wayne M., 302

K

Karch, R. Randolph, 37, 81, 99, 240, 264
Karnes, Ray, 101
Keefe, Bernard, 405
Kellogg, D. E., 259
Keyes, T. E., 11, 184, 201
King, Cecil E., 96
Kroll, Harry W., 336
Kuehner, J. Ernest, 28
Kurtz, Harmon, 349

L

Lampe, May Lillian, 29, 327, 398, 438
Leighton, Harvard, 362
Lindstrom, C. R., 378
Longley, E. L., 434
Lorr, John S., 330
Lukowitz, Joseph J., 80, 344
Lynch, E. Carlyle, Jr., 322

M

Maley, Donald, 400
Marsh, George L., 355
Mays, Arthur B., 263
McCloskey, J. H., 301, 309
McDougal, Wynne L., 256
McGinnis, Fred, 405
McGregor, James, 210
McHenry, Raymond B., 4, 284
McMahill, Don R., 121
McMillin, Mark, 13
Meade, Raymond D., 228
Meyer, E. D., 11
Michelson, H. W., 347
Miller, F. B., 69
Miller, Harold G., 74
Minderman, Earl, 283
Morgan, Norman W., 206
Munn, R. Russell, 186
Murray, R. E., 32, 438

N

Naset, R. M., 98
Nelson, Howard C., 396
Nevard, William K., 28
Newkirk, Louis V., 369
Newton, F. N., Jr., 249
Noakes, Harold L., 386
Northquest, Otto A., 349

O

Oberschmidt, Carl F., 427
Oberweiser, Gilbert, 170
Olson, Delmar W., 26, 126, 321
Opperman, W. F., 85

P

Parker, Ralph W., 306
Parkes, Donald M., 41
Pelikan, A. G., 272
Perkins, M. H., 262
Pieri, Ernest, 436
Reiter, Adam N., 250
Rerucha, E. A., 387
Rice, Chas. M., 298
Robbins, Harold E., 62
Roehl, Louis M., 103
Roesch, Henry, 181
Rose, H. C., 338, 395, 402
Rosenberg, L. B., 71
Rueter, R. W., 73

R

Radford, Stanley S., 242
Radtke, Arnold, 300
Radtke, Roy A., 376
Rainsford, John R., 319
Rathbun, Jesse E., 351
Ready, R. L., 303
Reagan, James E., 387
Reed, Howard O., 153
Reinel, Edwin J., 310

S

Schad, Joseph A., 5
Shade, Oliver, 243
Schofield, Harold E., 435
Schultz, George C., 326
Schulze, H. W., 406
Schuster, Arthur F., 360
Schweickhard, Dean, 49, 32A (March), 167, 185, 226, 280, 314, 374, 422
Selvidge, R. W., 3, 46, 106, 184, 271, 287, 430
Shafer, Boyd C., 1
Sherinyan, William S., 330
Short, Henry C., 442
Showalter, Hazel F., 334, 440
Silver, Julian, 70
Simnicht, George L., 60, 436
Siro, Einar E., 74, 218, 225, 307
Smith, Clifford B., 22
Smith, Earl E., 387
Smith, Homer J., 414
Smith, Robert E., 356
Sotzin, Heber A., 365
Sowers, J. I., 255
Spangle, W. E., 104
Stegmiller, Harold F., 356
Stinson, W. J., 258
Stluka, Edward W., 131, 381
Struck, F. Theo., 179, 371
Study, Harry P., 91
Sturm, Raymond W., 219
Sutfin, Clyde R., 324
Swift, Bernard G., 298

T

Tarbell, Robert W., 105
Tawes, W. I., 353
Thiede, A. L., 200
Thomas, H. D., 94
Tiedeman, Victor, 337
Toews, A. L., 308
Treasure, Ray, 361

V

Van Aken, William A., 355
Van De Walker, H. M., 441
Van Duzee, Roy R., 219, 267, 384
Van Nortwick, C. F., 300
Van Westrienen, Harold J., 237
Vincent, Terence, 33

W

Wagner, R. W., 77
Waller, C. H., 424
Walters, Edward V., 168
Watkins, Vernon C., 254
Watson, R. J., 207, 240
Weaver, Roger J., 238
Weitzenfeld, Jacob J., 435
Wells, C. R., 408
Weyer, Fred W., 249
Wigen, Ray A., 39
Wildgrube, Don K., 302
Williams, Ames G., 326, 351, 359
Wills, William W., 26
Wilson, Harry R., 434
Wood, Linder S., 395
Woods, Maude G., 108
Wright, Robert H., 215

Z

Zamory, Stanley S., 47

Wm.
rles M.
325
Wood-
38
l Costs,
301
Grinder,
d R. O.
50, 394,
Ammon,
l W.
Forrest
elix, 446
250
87
298
E., 62
103
81
395, 402
71
3
, 22
387
414
356
, 365
104
d F., 356
258
W., 131,
179, 371
91
W., 219
324
., 298
r, 337
308
361
Harold J.,
33
K., 302
G., 326,
W., 26
., 434
, 395
G., 108
H., 215